REMARKS

Applicants would like to thank the Examiner for the helpful and courteous interview held with Applicants' representative on August 12, 2003. During the discussion, it was noted that the solid composition of the claimed invention, comprising fragments of a fiber crop having high oil absorbency and an oily agricultural chemical, has substantially improved effectiveness compared to compositions in which the fragments of a fiber crop have low oil absorbency (i.e., absorbency below 100).

As discussed in paragraphs [0018] and [0155] of the present invention, a solid composition comprising fragments of a fiber crop having high oil absorbency and an oily agricultural chemical has lower seeping (i.e., premature release of the agricultural chemical and lower drift (i.e., dispersion to areas other than that intended) compared to compositions (i.e., Comparative Example 11) in which the fragments of the fiber crop have low oil absorbency (e.g., "stem portion from corn and the like", paragraph [0028]). The greater drift (i.e., Table 9) observed for comparative compositions with low oil absorbency results in ineffective treatment of weeds (i.e., barnyard grass, paragraph [0155]). Thus, the claimed solid composition employing fragments of a fiber crop having an oil absorption capacity of 100 or more is superior to compositions in which the fragments of a fiber crop do not have such high oil absorbency.

The Declaration enclosed herewith provides additional data showing that solid compositions comprising low oil absorbency materials (i.e., corn core or wood powder; oil absorbencies of 14.2 and 20, respectively) have significantly poorer properties compared to the claimed compositions, in which the oil absorbency of the fiber crop fragments is 100 or more. For example, Table 2 of the Declaration shows that Dust compositions in which the kenaf (high oil absorbency) is replaced with wood powder or crushed corn core (low oil absorbency; DL Dust 2 and 3) cake due to the seeping out of the agricultural chemical.

Likewise, granules in which the kenaf is replaced with crushed corn core (i.e., Granule 2) settle out rather than spread on water, resulting in undesireably high local concentrations of the agricultural chemical. Thus, the claimed composition, in which the fragments of fiber crop have an oil absorption capacity of 100 or more, provide superior performance compared to compositions in which the fragments of fiber crop do not have high oil absorbency.

Table 1 of the Declaration shows that compositions according to the claimed invention (i.e., Examples 1-12 and 14-18 of the present application) have fragments of fiber crops with oil absorption capacities ranging from 120-240, whereas the crushed corn stem of the composition of Comparative Example 11 has an oil absorption capacity of 10-30. As shown in Table 1, the composition of Comparative Example 11 has poor "seeping" properties (i.e., the agricultural chemical seeps out too rapidly), does not hold a large quantity of the agricultural chemical, and has poor drift properties. Thus, compositions having fragments of fiber crops with high oil absorption capacities have improved properties compared to compositions in which the "carrier" has a low oil absorption capacity.

The rejection of the claims under 35 U.S.C. §103(a) over the combination of Medoff and Oza is respectfully traversed. The claimed compositions, comprising fragments of a crop fiber having an oil absorbency of 100 or more, have improved properties compared to those suggested by the combination of Medoff and Oza.

Medoff describes cellulosic materials which can be treated with agricultural chemicals (col. 4, lines 5-6). The cellulosic materials can include wood, wood fibers, and corn cobs (col. 3, lines 11-16), which as discussed above and in the Declaration, have low oil absorption capacity (i.e., wood powder has an oil absorption capacity of 20; Declaration, Table 2). Thus, Medoff effectively teaches that low oil absorption capacity materials are effective in delivering chemicals (col. 3, lines 66-67). However, as discussed above, Applicants have found that compositions comprising high oil absorbency materials (e.g.,

kenaf, oil absorption capacity of 143-200; Declaration, Table 2) have significantly improved properties compared to compositions comprising low oil absorbency materials.

Moreover, since Medoff fails to describe the oil absorption capacity of the cellulosic materials, Medoff fails to recognize that an oil absorption capacity of 100 or more is result-effective in regard to the effectiveness of a solid composition for delivering agricultural chemicals.

Oza describes water soluble or water dispersible compositions in which a film-forming polymer, a water soluble material, and a water miscible solvent are combined, then dried to form a solid composition. The compositions of Oza may include solid fillers such as wood fiber and talc (col. 2, lines 60-63). However, talc is not a fragment of a fiber crop, and as discussed above, wood fibers do not an oil absorption capacity of 100 or more, as in the claimed compositions.

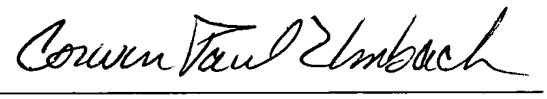
Both Medoff and Oza describe compositions in which the agricultural chemical is combined with low oil absorbency materials such as wood fibers, or materials which are not fragments of crop fibers, such as talc. Thus, the combination of Medoff and Oza fails to suggest the claimed composition, or suggest that fragments of a fiber crop having an oil absorption capacity of 100 or more is result-effective in improving the performance of solid compositions for delivering agricultural chemicals. Accordingly, the combination of Medoff and Oza fails to suggest the claimed composition.

The rejection of the claims under 35 U.S.C. § 102(a), (b), and (e) over Grether are obviated by appropriate amendment. Claims 12 and 13 have been canceled.

Applicants respectfully submit that the present application is now in condition for allowance. Early notification thereof is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF	:
SUSUMU KATO, ET AL.	: EXAMINER: CLARDY, S.
SERIAL NO: 10/066,560	:
FILED: FEBRUARY 6, 2002	: GROUP ART UNIT: 1616
FOR: SOLID AGRICULTURAL CHEMICALS COMPOSITION, PREPARATION THEREOF AND THE METHOD FOR SCATTERING THE SAME	:

DECLARATION UNDER 37 C.F.R. § 1.132

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

Now comes Tetsuo Okawa who deposes and states that:

1. I am a graduate of Iwate University and received my bachelor's degree in the year 1982.

2. I have been employed by Kumiai Chemical Industry Co., Ltd for 21 years as a researcher in the field of pesticide formulation

3. The following experiments were carried out by me or under my direct supervision and control.

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Table 1

A table showing oil absorption capacity of fragments of fiber crops used in Examples 1 to 18 and Comparison Example 11; evaluation results described in the specification indicated as follows, where O indicates good results and X indicates unacceptable results.

	oil absorption value of carrier	pulverization of agrochemically active ingredient	prevention of seeping out	holding a large quantity of agrochemically active ingredient	little drifting	residual effectiveness	Biodegradability of carrier
Examples 1 to 3, 5	130 to 180	O	O	O		O	O
Example 4	130 to 180	O	O	O		O	O
Example 6	180 to 240		O	O		O	O
Examples 7 to 10 and 16	180 to 240		O	O	O Table 9	O	O
Example 11	180 to 240		O	O		O	O
Example 12	110 to 150	O	O			O	O
Example 14	120 to 140	O	O	O		O	O
Example 15	110 to 140		O	O		O	O
Example 17	130 to 160					O	O
Example 18	130 to 180					O	O
Comparison Example 11	10 to 30	O	X	X	X Table 9		O

TO

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Sample Formulations

DL Dust 1 (Formulation of Example 1)

A suspension type liquid matter obtained by mixing 3 parts of IBP, 2 parts of BPMC, 0.3 parts of Kumiresu (manufactured by Nikka Fats & Oils Co., Ltd.), and 0.2 parts of tall oil fatty acid (manufactured by Harima Kasei Kogyo Co., Ltd.) was mixed with 4.5 parts of fragments of kenaf trunk portion (passed through a 0.3 mm mesh sieve). 30 parts of clay (manufactured by Miyaki Industry Co., Ltd) and 60 parts of DL clay (manufactured by Miyaki Industry Co., Ltd.) were added to this mixture and they were mixed together and crushed with a hammer mill (manufactured by Fuji Paudal Co., Ltd.) to provide a DL dust type formulation having a composition according to the claimed invention.

DL Dust 2 (replacement of the fragments of kenaf trunk portion in Example 1 with fragments of corn core)

A suspension type liquid matter obtained by mixing 3 parts of IBP, 2 parts of BPMC, 0.3 parts of Kumiresu (manufactured by Nikka Fats & Oils Co., Ltd.), and 0.2 parts of tall oil fatty acid (manufactured by Harima Kasei Kogyo Co., Ltd.) was mixed with 4.5 parts of fragments of corn core (passed through a 0.3mm mesh sieve). 30 parts of clay (manufactured by Miyaki Industry Co., Ltd.) and 60 parts of DL clay (manufactured by Miyaki Industry Co., Ltd.) were added to this mixture and they were mixed together and crushed with a hammer mill (manufactured by Fuji Paudal Co., Ltd.) to provide a DL dust type formulation having a composition according to the claimed invention.

DL Dust 3 (replacement of the fragments of kenaf trunk portion in Example 1 with wood powder)

A suspension type liquid matter obtained by mixing 3 parts of IBP, 2 parts of BPMC, 0.3 parts of Kumiresu (manufactured by Nikka Fats & Oils Co., Ltd.), and 0.2 parts of tall oil fatty acid (manufactured by Harima Kasei Kogyo Co., Ltd.) was mixed with 4.5 parts of wood powder (passed through a 0.3 mm mesh sieve). 30 parts of clay (manufactured by Miyaki Industry Co., Ltd.) and 60 parts of DL clay (manufactured by Miyaki Industry Co. Ltd.) were added to this mixture and they were mixed together and crushed with a hammer mill (manufactured by Fuji Paudal Co., Ltd.) to provide a DL dust type formulation having a composition according to the claimed invention.

Granule 1 (replacement of the crushed corn stem fragments in Comparison Example 11 with the fragments of kenaf trunk portion)

10 parts of thiobencarb, 0.6 parts of polyoxyethylene styrilphenylether sulfate, 0.4 parts of alkylbenzene calciumsulfonate, and 1 part of kerosine were mixed to obtain liquid matter. Thus obtained liquid matter and 88 parts of the fragments of kenaf trunk portion (passed through a 1 to 3 mm mesh sieve: water content 12%) are mixed to obtain a granule type formulation.

Granule 2 (formulations of Comparison Example 11. Since corn stem was not available, corn core was used instead)

10 parts of thiobencarb, 0.6 parts of polyoxyethylene styrilphenylether sulfate, 0.4 parts of alkylbenzene calciumsulfonate, and 1 part of kerosine are mixed to obtain liquid matter. The thus obtained liquid matter and 88 parts of corn core fragments (passed through a 1 to 3 mm mesh sieve: water content 12%) were mixed to obtain a granule type formulation.

Test Method

Heat test under pressure

25 g of each sample (dust formulations DL Dust 1, DL Dust 2, and DL Dust 3, respectively) were put in a glass tube of 50 mm in diameter and 70 mm in height, and pressurized to 25 g/cm^2 with a weight. The samples were maintained at this pressure in a thermostatic chamber at 54°C for 3 days, then held at 20°C for 3 hours. Then the samples were transferred to a 12 mesh sieve (aperture 1.4 mm) and tapped 10 times. The sample remaining in the sieve was observed with the naked eye.

Spreading test on the water surface

200 ml of water was poured into a 200 ml beaker, which held 0.5 g of the granule samples (Granule 1 and Granule 2). The releasability, spreadability, and expandability of the granule samples were observed with the naked eye.

Test Results (Table 2)

Heat test under pressure

DL Dust 1 (crushed kenaf powder): The naked eye observation of this formulation showed no sample caking in the sieve. That is, no seeping out of the agrochemically active ingredient was observed, and nearly the entire sample had passed through the sieve.

DL Dust 2 and DL Dust 3 (corn core fragments and the wood powder, respectively): Slight caking of the samples due to the seeping out of the liquid agrochemically active ingredient was observed in the sieve.

The pulverized fragments of kenaf can be applied without problem after storage, but the crushed corn cobs fragments and sawdust are not likely to be scattered (i.e., be applied) in the conventional manner due to choking in the sprayer or the like.

Spreading test on the water surface

Granule 1 (fragments of kenaf): Seeping out of the emulsion, and the settling down of emulsion in the water are not observed, after application of the sample onto water, and the granule type formulation floats.

Granule 2 (corn core fragments): The emulsion seeps out immediately and settles down.

The granule type formulation using the fragments of kenaf (Granule 1) according to the claimed invention is expected to have a residual-effectiveness for a long time after application, but the comparative granule type formation using the corn fragments releases the agrochemically active agent so quickly that residual-effectiveness cannot be expected. Furthermore, since the emulsion settles down locally in high concentration, it is feared that persistence of the agrochemically active agent in the soil would cause serious problems.

Thus, dust or granule type compositions according to the claimed invention, comprising fragments of a fiber crop (e.g., kenaf) having an oil absorption capacity of 100 or more and at least one agricultural chemical provide significantly improved performance compared to otherwise identical compositions in which the fragments have an oil absorption capacity of less than 100 (e.g., corn core or wood powder).

Table 2

	(Oil absorption capacity)	DL Dust 1	DL Dust 2	DL Dust 3	Granule 1	Granule 2
active ingredient IPB		3.0	3.0	3.0		
active ingredient BPMC		2.0	2.0	2.0		
active ingredient thiobencarb					10.0	10.0
Kunipsu		0.3	0.3	0.3		
tall oil fatty acid		0.2	0.2	0.2		
polyoxyethylene styrylphenylether sulfonate					0.6	0.6
alkylbenzene calciumsulfonate					0.4	0.4
kerosine					1.0	1.0
fragment of kenaf trunk (kenaf powder <0.3mm)	143	4.5				
fragment of corn core (corn powder <0.3mm)	25		4.5			
wood powder (<0.3mm)	20			4.5		
kenaf trunk fragment (1-3mm)	200				88.0	
crushed pieces of corn core (1-3mm)	14.2					88.0
clay		30.0	30.0	30.0		
DL clay		60.0	60.0	60.0		
total		100.0	100.0	100.0	100.0	100.0
Heat test under pressure		no problem	caking	caking		
Spreading test on the water surface					none observed	emulsion sediment

4. The undersigned petitioner declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

5. Further Deponent saith not.

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October 16, 2003
Date

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